FreeSpace® 4400
Business Music System

TECHNICAL DATA SHEET

Product Overview

The Bose® FreeSpace® 4400 business music system is an integrated four-zone system providing signal processing, routing and amplification for business music applications.

System setup and configuration are accomplished using the included FreeSpace 4400 Installer™ software.

FreeSpace 4400 system AVM (Auto Volume/Mute) or Page user interfaces allow the owner to control system operation.

Product Information

In a single component, the FreeSpace 4400 business music system provides processing, control functions and up to 400W of system power for most business music applications requiring one to four zones.

The FreeSpace 4400 business music system has five audio inputs – two dedicated line-level inputs, one mic/line input, one page/mic/line input and one dedicated direct input. The line-level inputs feature dual RCA jacks, and the mic/line input features a 3-pin Euroblock connector. The page/mic/line and the direct inputs feature 4-pin Euroblock connectors for PTT (push-to-talk) capability.

Onboard DSP provides routing and signal processing for up to four output zones. Any input source may be assigned to any of the four output zones. Each output zone supports Auto Volume, Dynamic Equalization, Room EQ, Bose Loudspeaker EQ and Output Gain functions.

A proprietary Power Sharing amplifier distributes up to 400W of system power across the four output zones. Each output zone may draw as little as 1W of power up to as much as 400W. The amount of power delivered to an output zone is dependent on the quantity and transformer tap setting of loudspeakers that are connected. The amplifier can be configured for either 70V or 100V constant voltage systems.

FreeSpace 4400 Installer software is included with the FreeSpace 4400 business music system. Used for the setup and configuration of the system, the FreeSpace 4400 Installer software requires a PC for operation.

Key Features

- Proprietary Power Sharing amplifier dynamically distributes 400W of system power across the four output zones.
- Auto Volume offers automatic control of individual zone volume. Volume levels are adjusted to compensate for changes in background noise, according to the system settings.
- Each output zone may be independently paged.
- Opti-voice® paging provides a smooth transition between the music and page signals.
- Opti-source® level management monitors the input level of up to four sources. Source levels are continually adjusted to maintain a consistent volume level among different sources.
- Scheduling allows system ON/OFF, zone volume, mute, Auto Volume and source change events to be programmed. Up to 64 events may be programmed to occur on specific days and times.

Applications

The FreeSpace 4400 business music system is engineered for business music applications requiring up to four system zones, such as:

- Restaurants
- Retail stores
- Hospitality venues
- Supermarkets
- Shopping centers
- Conference centers

FreeSpace® 4400
Business Music System

TECHNICAL DATA SHEET

Detailed Product Specifications

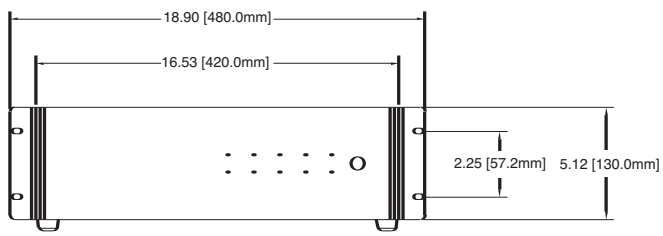
PERFORMANCE	
Amplifier power	EIA (1 kHz, 1% THD): 440W FTC Continuous Average: 400W
THD (@ full-rated power)	<1.0%
Crosstalk (below rated power, 1 kHz)	>70 dB
Common mode rejection (20 Hz to 1 kHz)	50 dB
Signal-to-noise ratio (below rated power, A-weighted)	90 dB
A/D, D/A converters	24 bit, 128x oversampling
Frequency response (@ 1 watt)	20 Hz – 20 kHz, ± 1 dB
Sample rate	44.1 kHz
AC power consumption	Idle: 60W Active: 300W maximum with program material
Environmental	Temperature: 32° – 122°F/0° – 50°C Humidity: 85% max relative humidity

MECHANICAL SPECIFICATIONS	
Dimensions	16"D x 16.5"W x 5.1"H (406mm x 420mm x 130mm)
Weight	Product: 31lb (14.1kg) Shipping: 41lb (18.6kg)

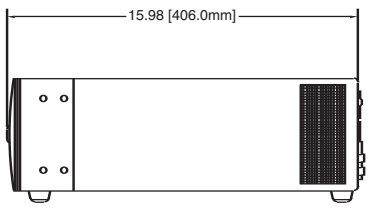
AUDIO INPUTS	
Line Inputs (2 – Unbalanced)	
Connector	Dual RCA (summed to mono)
Range	-30 dBV to +17 dBV
Impedance	25 kΩ
Input clip level	+17 dBV
Mic/Line Input (1 – Balanced)	
Connector	3-pin Euroblock
Range	-60 dBV to +17 dBV
Impedance	1.36 kΩ
Input clip level	+17 dBV
Mic/Line/Page Input (1 – Balanced)	
Connector	4-pin Euroblock
Range	-60 dBV to +17 dBV
Impedance	1.36 kΩ
Input clip level	+17 dBV
Direct Input (1 – Balanced)	
Connector	4-pin Euroblock
Range	0 dBV
Impedance	10 kΩ
Input clip level	0 dBV
Auto Volume Sense Mics (4 – Unbalanced)	
Connector	2-pin Euroblock

AUDIO OUTPUTS	
Amplifier Outputs (4)	
Connector	2-pin inverted Euroblock
Min load	12.5Ω @ 70V, 25Ω @ 100V
Line Output (1 – Balanced)	
Connector	4-pin Euroblock
Impedance	300Ω
Max level	+11 dBV (70V), +14 dBV (100V)
Music On Hold Output (1 – Unbalanced)	
Connector	2-pin Euroblock
Impedance	400Ω
Max level	+15 dBV

Mechanical Diagrams

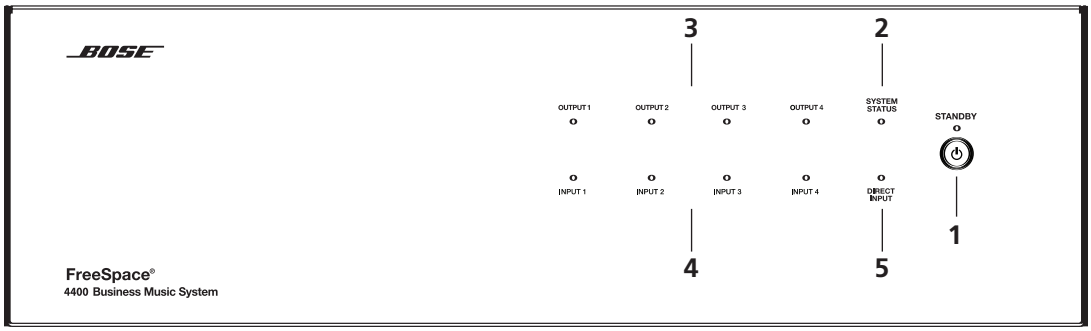


Front View



Side View

Front- and Rear-Panel Diagrams



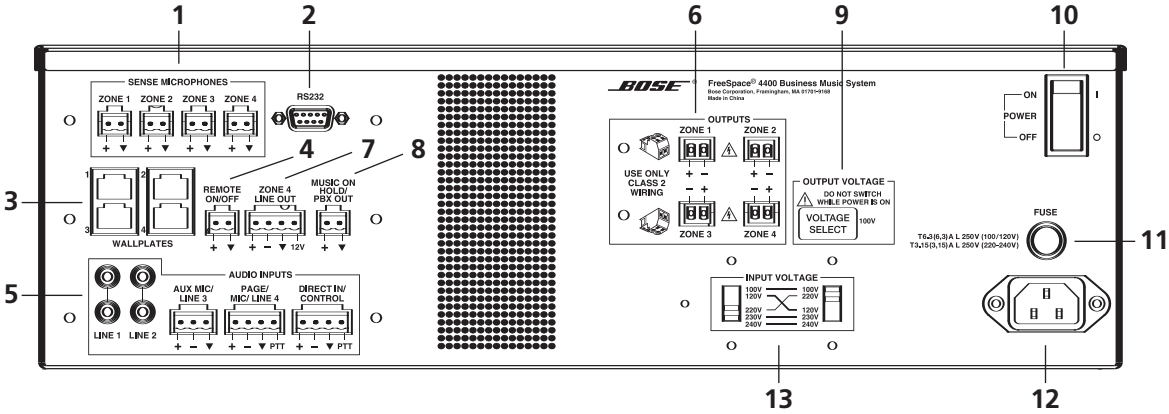
1 **STANDBY** – The color of the LED above the switch indicates the status.
Amber = Unit is in standby Unlit = Unit is active

2 **SYSTEM STATUS** – Indicates the condition of the unit.
Green = Normal operation Red = Fault condition

3 **AMP OUTPUTS** – These LEDs indicate the operating status of the four amplifier output channels.
Green = Normal signal operation
Red = Fault condition
Unlit = No signal

4 **AUDIO SOURCES** – These LEDs indicate the operating status of the four input sources.
Green = Good signal Amber = Low signal
Red = Signal clipping Unlit = No signal

5 **DIRECT INPUT** – The color of this LED indicates the condition of the source connected to the DIRECT IN/CONTROL connector on the rear panel.
Amber = Active bypass Unlit = Normal operation



1 **SENSE MICROPHONES** – Input connectors for Auto Volume sensing microphones.

2 **RS-232** – Communications port provides a communications interface for a PC running FreeSpace® 4400 Installer™ software.

3 **WALL PLATE CONNECTIONS** – Input connectors for AVM 1-Zone, AVM 2-Zone user interface or Page user interfaces.

4 **REMOTE ON/OFF** – Input connector for a remote STANDBY switch.

5 **LINE 1/LINE 2** – Unbalanced audio inputs.
AUX MIC/LINE 3 – Balanced audio input with phantom power.
PAGE/MIC/LINE 4 – Balanced audio input with phantom power.
DIRECT IN/CONTROL – Balanced (DSP bypassed, full amplifier gain) audio input.

6 **ZONE OUTPUTS 1/2/3/4** – Loudspeaker connections for four zones.

7 **ZONE 4 LINE OUT** – A line-level output that duplicates the program material from LINE 4.

8 **MUSIC ON HOLD/PBX OUT** – An audio output used to provide music input to a PBX system.

9 **OUTPUT VOLTAGE** – Sets the ZONE OUTPUT lines to 70/100V.

10 **POWER OFF/ON** – Switches AC power on or off.

11 **FUSE** – T6.3 (6,3) A L 250V (100/120V) or T3.15 (3,15) A L 250V (220-240V).

12 **AC MAINS LINE CORD JACK** – AC line voltage input.

13 **INPUT VOLTAGE** – Switches need to be configured for proper input voltage.

Accessories

The following accessories are available for the FreeSpace® 4400 business music system.

AVM 1-Zone user interface
Wall-mountable and fits into a standard double-gang junction box. Volume up/down controls, source selection, mute or Auto Volume on/off control for a single zone.

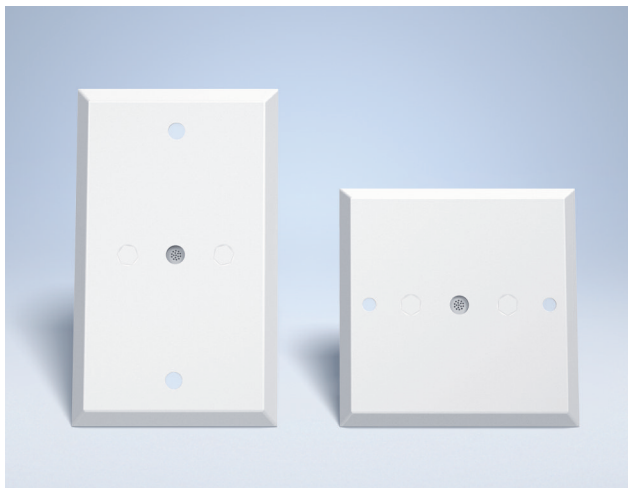
PC 042351

AVM 2-Zone user interface
Wall-mountable and fits into a standard double-gang junction box. Volume up/down controls, source selection, mute or Auto Volume on/off control for two zones.

PC 042352

Page user interface
Wall-mountable and fits into a standard double-gang junction box. 1-4 zone page selection, all zones page selection and initiate page.

PC 042353



Auto Volume mic kit
Auto Volume sensing microphone placed within a system zone to measure background noise.

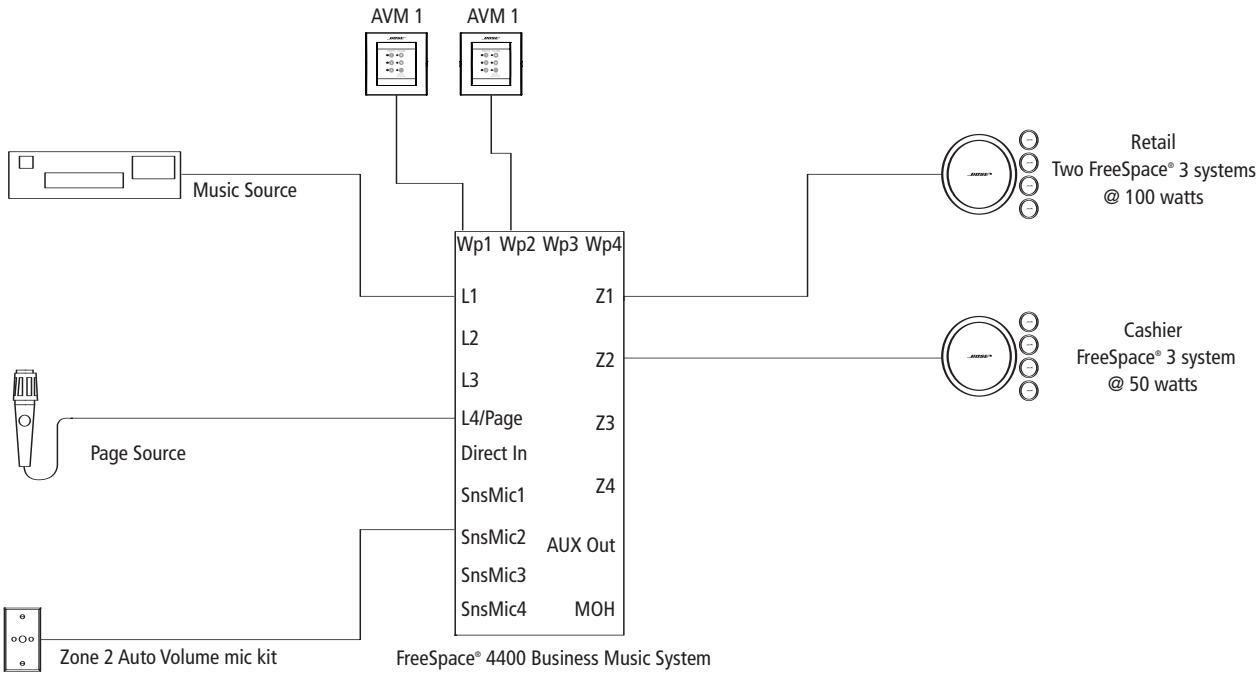
Mic Kit, US size	PC 042354
Mic Kit, Euro size	PC 042355

Example Configuration: Two-Zone System

Small Market

The store is comprised of two zones: the main retail area and the cashier area. The main retail area receives music and paging, and operates at a fixed volume level. The cashier area also receives music and paging, but its volume is controlled by the Auto Volume function and an AVM 1-Zone user interface.

	Zone 1 Retail	Zone 2 Cashier	Zone 3	Zone 4
Sources				
Music	•	•		
Paging	•	•		
Controls				
AVM 1-Zone UI (Mute)	•			
AVM 1-Zone UI (Auto Volume)		•		

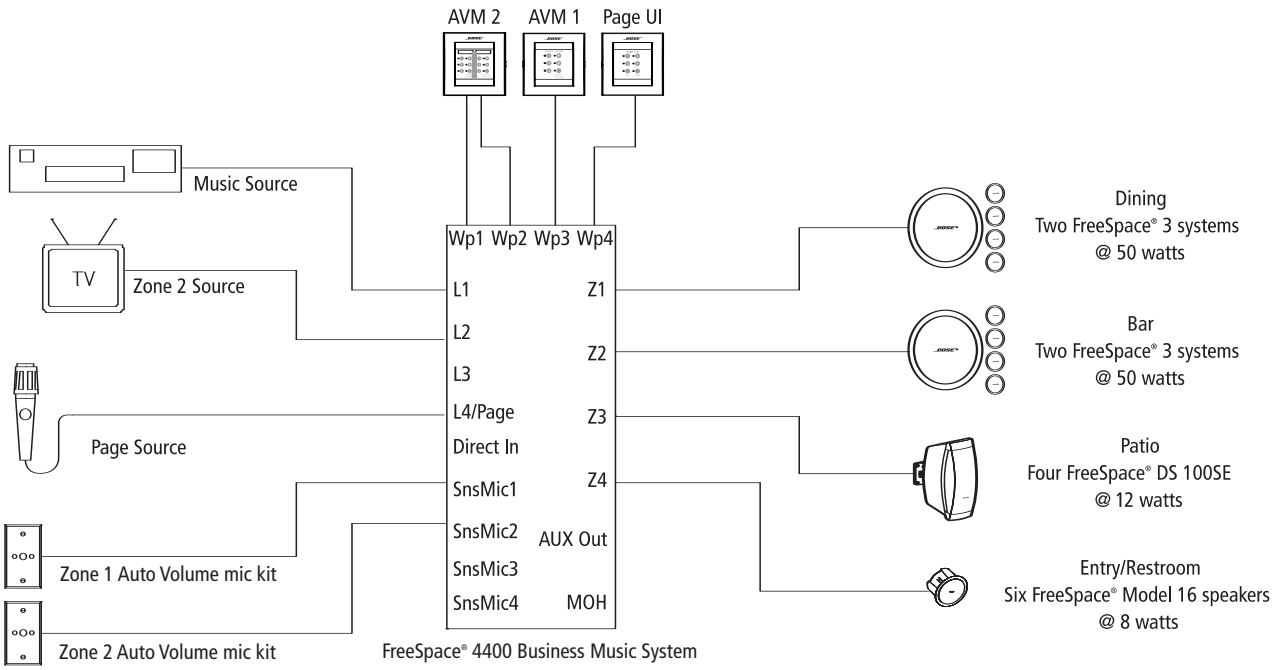


Example Configuration: Four-Zone System

Restaurant

The restaurant is comprised of four zones: dining, bar, patio and the entry/restrooms. All zones receive the music source, and the bar and entry/restrooms area receive paging. The bar area also can select the television audio source. The dining and bar areas' volume is controlled by the Auto Volume function using the AVM 2-Zone user interface. The patio zone is controlled by an AVM 1-Zone user interface. A Page user interface is connected to the wall plate number four connection to provide independent paging of the two page zones.

	Zone 1 Dining	Zone 2 Bar	Zone 3 Patio	Zone 4 Entry/Restrooms
Sources				
Music	•	•	•	•
TV		•		
Paging		•		•
Controls				
AVM 1-Zone UI (Mute)			•	
AVM 2-Zone UI (Auto Volume)	•	•		
Page UI		•		•



FreeSpace® 4400 Installer™ Software

FreeSpace® 4400 Installer™ software is included with the FreeSpace 4400 business music system and is required for system setup and configuration.

System Requirements

Hardware:

- Minimum 200 MHz Pentium-based PC
- 128MB of free RAM
- 4x CD-ROM
- 90MB free internal hard disk space
- RS-232 port or USB to RS-232 adapter

Operating Systems:

- Windows® 98, Windows NT 4.0, Windows 2000, Windows ME, Windows XP

Display:

- 800 x 600 resolution, 16-bit color

Engineers' and Architects' Specifications

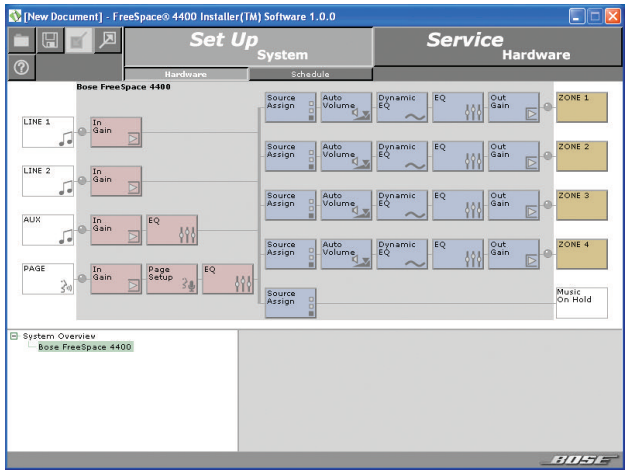
The unit shall be an integrated signal processing and amplification system. The system shall use a digital signal processing architecture running at 44.1 kHz sample rate. The frequency response shall be from 20 Hz to 20 kHz, ±1 dB. The signal-to-noise ratio shall be 90 dB or greater (A-weighted).

The power amplification section shall deliver a maximum of 400W with less than 1.0% THD. Channel separation shall be >70 dB at 1 kHz. The system shall consume AC power of 60W or less at idle, 300W at maximum continuous rated power.

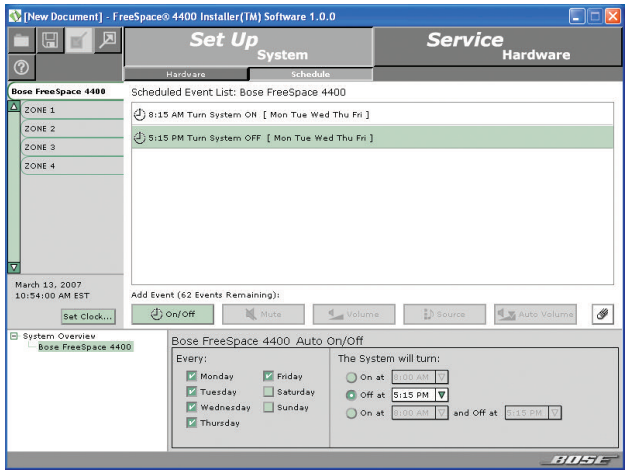
The system shall perform the following processing functions:

- Input gain
- Input leveling
- Source routing
- Paging with adjustable ducking depth, hold and release time
- Automatic Volume control for each output zone
- Music on hold
- Three-band graphic equalization per zone
- Loudspeaker EQ for Bose® loudspeakers
- Output gain with mute
- Loudspeaker protection limiting
- System diagnostics

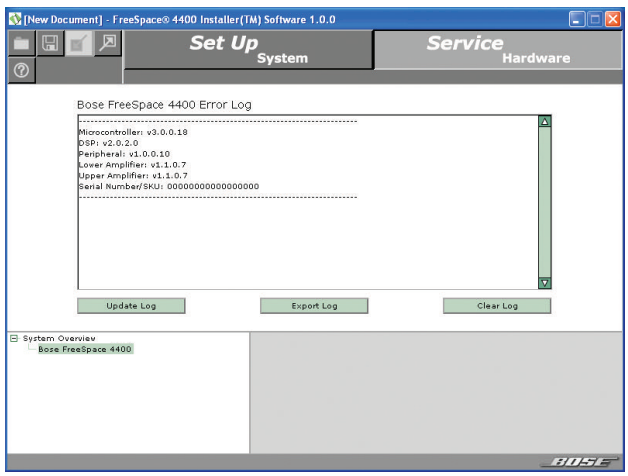
The system shall be the Bose® FreeSpace® 4400 business music system.



FreeSpace 4400 Business Music System Setup



FreeSpace 4400 Business Music System Event Schedule



FreeSpace 4400 Business Music System Error Log

FreeSpace® 4400
Business Music System

TECHNICAL DATA SHEET

Safety and Regulatory Compliance

The FreeSpace® 4400 business music system complies with CE requirements, is cUL Listed according to UL60065 (7th edition) and CAN/CSA C22.2 No. 60065-03, CB approved according to IEC60065 (7th edition) including group and National differences, GS approved according to EN60065 (7th edition), C-Tick and PSE compliant. This Class A digital apparatus complies with Canadian ICES-003, FCC Part 15B Class A (2006), EN55103-1 (1996) and EN55103-2 (1996) requirements.

When configured for 100V input voltage operation, the FreeSpace 4400 business music system meets CISPR13 (2003) requirements.

Limited Warranty

The FreeSpace 4400 business music system is covered by a two-year transferable limited warranty. Details of the warranty and its coverage are included in the FreeSpace 4400 business music system Owner's Guide.

Product Codes

FreeSpace 4400 business music system

120V – US	PC 042346
230V – EU	PC 042347
230V – UK	PC 042349
240V – AU	PC 042350
100V – Japan	PC 042348

Accessories

AVM 1-Zone User Interface	PC 042351
AVM 2-Zone User Interface	PC 042352
System Page User Interface	PC 042353
Auto Volume Mic Kit (US size)	PC 042354
Auto Volume Mic Kit (EU size)	PC 042355

Replacement Parts

Accessories kit – includes (4) rubber feet, (2) rack-mounting ears with screws, (7) 2-terminal input connectors, (2) 3-terminal input connectors, (4) 4-terminal input connectors, (5) 2-terminal output connectors, (2) Voltage Select labels.	PN 302389
Rubber feet (4)	PN 298707
AC power cord, 120V US	PN 298165
AC power cord, 230V EU	PN 298166
AC power cord, 100V JPN	PN 298167
AC power cord, 230V UK	PN 298168
AC power cord, 240V AU	PN 298169

How our Products are Measured

1. Amplifier power

EIA Power – With the amplifier operating in 70V or 100V mode, a single channel is driven to full power with the minimum load impedance. Output power is measured using a 1 kHz sine wave with 1% THD, as measured at the amplifier output.

FTC Continuous – With the amplifier operating in 70V mode, any combination of channels are driven to full power with the minimum load impedance. Output power is measured using test signals between 20 Hz and 12 kHz with 1% THD, as measured at the amplifier output.

2. Signal-to-noise ratio

The output of the amplifier is connected to the rated load impedance with a unity gain of a frequency of 1 kHz. A dB-calibrated voltmeter is connected to the amplifier's output through an A-weighting filter (in accordance with IEC 60651). A 1 kHz signal is connected to one of the line inputs, and the level is adjusted to achieve the amplifier's rated output power. The signal source is removed, and the line input is shorted. The dB-calibrated voltmeter now reads the A-weighted output noise level.

BOSE®
Better sound through research®

All information subject to change without notice.
©2007 Bose Corporation.
Bose, FreeSpace, Opti-source, ControlSpace, Installer and Opti-voice are trademarks of Bose Corporation.
All other marks are the property of their owners.
CCM-004554 PC044344